

REMARKS

Claim 15 has been rejected 35 U.S.C. §102(b) as being anticipated by Giorgini, U.S. Patent No. 6,401,714.

Claims 1 and 2 have been rejected under 35 U.S.C. §103(a) as being anticipated by Giorgini '714 in view of Trinkwalder, U.S. Patent No. 4,152,848.

Claims 3-13 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Giorgini '714, Trinkwalder '848 and Readey, U.S. Patent No. 6,003,513 and further in view of Gray et al., U.S. Patent No. 5,097,826.

Claim 14 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Giorgini '714 or Trinkwalder '848.

The Examiner's rejections are respectfully traversed.

The Applicant's invention as now amended is directed to a self-contained underwater breathing apparatus comprising a first stage gas pressure regulator adapted for connection to a breathing gas supply cylinder to reduce the pressure of gas therein to a medium pressure gas, and via a hose to a second stage gas pressure regulator to reduce the medium pressure gas to a pressure suitable for breathing. The first stage regulator includes a body defining an internal dry chamber, an inlet port in the chamber for receiving high pressure gas from a source thereof, a valve assembly to reduce the high pressure gas to medium pressure gas in the chamber, and an outlet port for the medium pressure gas. The underwater breathing apparatus includes an electronically operable pressure sensing module contained within the internal dry chamber of the first stage regulator to monitor the pressure of the medium pressure gas therein and to transmit an electrical signal representative thereof to an indicator housed within the internal dry chamber of the first stage regulator and visible to the user to indicate thereto the

pressure of the medium pressure gas. More specifically, the invention for scuba equipment includes the provision of a pressure sensing module to be contained within the first stage regulator and to provide a read-out of the medium pressure gas present in and applied by the first stage regulator. It is a safety device for the diver to ensure, before a dive, that the first stage regulator is properly set and is operating according to the user's requirements. The device is not meant to sense the pressure of the high pressure gas in the cylinder, nor is it a device to provide a warning when the high pressure gas is depleted. That information is usually provided by separate means.

Georgini '714 is directed to a device for an entirely different purpose. Referring to Figure 1 of Georgini, a first stage regulator 22 reduces the high pressure gas in tank 12 to a medium pressure which is fed by a hose 34 to a second stage regulator 40 incorporated within a breathing mask. When the high pressure gas in tank 12 is depleted, a piston 127 depresses a spring 32 allowing valve 30 to open, thus increasing the pressure of gas fed to the hose 34. This increase depresses the piston 60 against the spring 62 to close switch 72 to activate an alarm 64. Thus, the device is a warning system to alert the diver when the high pressure gas in the tank 12 is depleted to an extent that the diver should discontinue use of the equipment. Georgini '714 does not provide a check of the medium pressure gas in the system but only activates an alarm when the high pressure gas is depleted.

Trinkwalder '848 is an entirely different device used only for training purposes and again produces a warning or indication if the high pressure gas is depleted. In this device a small temporary tank 20 is provided within a larger tank 10. Breathing gas from the tank 10 is fed into the tank 20 by opening valve 28. The valve is then closed and a small quantity of breathing gas is contained within the small tank 20. A first stage regulator 14 containing a

warning means 17 supplies the gas to a face mask 18, and when the temporary supply of high pressure gas in small tank 20 is depleted, a warning signal is given to familiarize the trainee diver with a situation in which the high pressure gas is nearly depleted. Accordingly, the warning device is merely an alarm to indicate loss of high pressure gas and does not provide a reading of medium pressure gas nor the condition of the first stage regulator 14. Thus, a combination of Giorgini and Trinkwalder do not anticipate nor render obvious the provision of a pressure monitor contained within a first stage regulator to provide a permanent read-out of the condition of the regulator and of the medium pressure gas.

In the present application, the pressure monitor has been housed within the first stage regulator since there is a dry chamber available in such a regulator as indicated in Figure 1. There is only a slight increase in the dimensions of regulator as shown in Figure 2, to make it possible to house the pressure monitor, its electronics and a visual read-out device, in a location where the reading can easily be seen through a window in the regulator where a hydrostatic transmitter is usually provided.

Again, the whole purpose of the present invention is not to provide a warning of gas pressure in the tank as with Giorgini and Trinkwalder, but rather to provide a check that the first stage regulator is set and is functioning correctly.

In view of the foregoing, it is believed that the amended claims and the claims dependent there from are in proper form. The Applicant respectfully contends that Giorgini '714 does not anticipate the claimed invention under the provisions of 35 U.S.C. §102(b) and also that Giorgini '714 in view of Trinkwalder '848 do not anticipate the claimed invention under provisions of 35 U.S.C. §103(a). The Applicant also respectfully contends that the teachings of Giorgini '714, Trinkwalder '848 and Readey '513 and further in view of Gray

'826 do not establish a *prima facie* case of obviousness under the provisions of 35 U.S.C. §103(a). Thus, claims 1-15 are considered to be patently distinguishable over the prior art of record.

The application is now considered to be in condition for allowance, and an early indication of same is earnestly solicited.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Arlene J. Powers', is written over a horizontal line.

Arlene J. Powers
Registration No. 35,985
Gauthier & Connors LLP
225 Franklin Street, Suite 3300
Boston, Massachusetts 02110
Telephone: (617) 426-9180
Extension 110